ATTACHMENT

CTC-06

DE 97-229

BELL ATLANTIC

Arbitration Regarding Request for
Recognition of Dark Fiber as an Unbundled Network
Element

Order Finding Dark Fiber Subject to
the Unbundling Requirement of Section 251 of the
Telecommunications Act of 1996

O R D E R N O. 22,942

May 19, 1998

APPEARANCES: Sulloway & Hollis, P.L.L.C. by Martin L. Gross, Esq. and Gregory R. Kirsch, Esq. for Vitts Corporation; Victor D. DelVecchio for New England Telephone and Telegraph d/b/a Bell Atlantic - New Hampshire; the Office of the Consumer Advocate by William H. Homeyer for residential ratepayers of the State of New Hampshire; and E. Barclay Jackson, Esq. for the Staff of the New Hampshire Public Utilities Commission.

I. PROCEDURAL HISTORY

On October 30, 1997, Vitts Corporation (Vitts) and New England Telephone & Telegraph Company d/b/a Bell Atlantic - New Hampshire (Bell Atlantic) jointly filed with the New Hampshire Public Utilities Commission (Commission) a request for arbitration, pursuant to □252 of the Telecommunications Act of 1996 (hereinafter referred to as the TAct), of Vitts' bona fide request for provision of Dark Fiber as an unbundled network element under □251 (c)(3) of the Tact. Vitts and Bell Atlantic are parties to an Interconnection Agreement previously approved by the Commission.

After a duly noticed prehearing conference, the New Hampshire Public Utilities Commission approved an expedited procedural schedule which permitted testimony, discovery, hearings, and submission of proposed contract language to be considered within the time constraints contained in □ 252. The Office of the Consumer Advocate (OCA) participated in all phases of the process.

On February 9, 1998, Vitts filed a Motion to Compel Further Responses to a Data Request submitted to Bell Atlantic. Bell Atlantic responded in opposition to the motion on February 11, 1998. The motion was resolved at hearing by agreement of the Parties and the Commission Staff (Staff).

On February 12, 1998, the first day of hearings, the Commission revised the procedural schedule pursuant to Vitts' request and, with the acquiescence of Staff, the OCA, and Bell Atlantic, added a requirement for the filing of written briefs. Vitts filed its initial brief at the close of hearings on March 10, 1998. Staff, the OCA and Bell Atlantic filed briefs on March 27, 1998. With the Commission's permission, Vitts filed a supplemental brief on that date.

II. BACKGROUND AND STATEMENT OF THE ISSUES

The purpose of the 1996 Telecommunications Act (TAct), as stated in its title, is "to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage rapid development of new telecommunications technologies." To achieve that purpose,

as part of its interconnection provisions, the TAct requires Incumbent Local Exchange Carriers (ILECs) to offer unbundled access to their existing network elements to requesting carriers. 47 U.S.C. 251(c)(3). The Federal Communications Commission (FCC), in its First Report and Order, Implementation of the Local Competition in the Telecommunications Act of 1996, CC Docket No. 96-98, FCC 96-325, adopted August 1, 1996, released August 8, 1996 (hereinafter referred to as the Local Competition Order) provided regulations to implement these interconnection provisions, including unbundling network elements. The FCC specified particular network elements which must be unbundled, but refrained from addressing Dark Fiber, concluding that the record was insufficient for making a decision (450) and leaving that decision to state commissions.

In order to determine whether Dark Fiber should be unbundled, 251(c)(3) and 251(d)(2)(b) require us to resolve three questions:

(1) Is Dark Fiber a network element?

(2) Will failure to provide access to Dark Fiber impair Vitts' ability to compete? and

(3) Is provision of unbundled Dark Fiber technically feasible?

Bell Atlantic does not dispute that unbundling Dark Fiber is technically feasible where capacity exists. Therefore, the focus of this docket is on the first two questions: whether Dark Fiber is a network element and how Vitts will be affected by not obtaining Dark Fiber on an unbundled basis.

The Parties and Staff also addressed the issue of how to provide unbundled Dark Fiber if the Commission answers the two questions affirmatively.

III. POSITIONS OF THE PARTIES AND STAFF

A. Vitts

1. Definition

Vitts argues that Dark Fiber comes within the definition of "network element" provided in the TAct at Section 153(2)(45): "a facility or equipment used in the provision of a telecommunications service." Vitts urges the Commission to interpret "used in" as meaning "intended for and capable of use" in the provision of telecommunications services.

This broad interpretation, focusing on the capacity for use rather than the current use of the element, is required, according to Vitts, because it furthers the TAct's objective of fostering competition. Vitts argues that the narrower interpretation allows an ILEC to keep spare capacity for its sole use, frustrating the intent of the TAct. In support of the broader interpretation, Vitts points to the plain language of the definition, which does not specify that the facility be currently in use. Furthermore, Vitts argues, Bell Atlantic itself classifies its Dark Fiber as used and useful for ratemaking purposes. Bell Atlantic placed all of its investment in deployed fiber into the New Hampshire rate base and is earning a return on both lit and dark fiber. According to Vitts, Bell Atlantic cannot logically have it both ways, using Dark Fiber for ratemaking but not for competitive interconnection purposes.

Vitts cited a number of other state utility commission orders ruling that Dark Fiber is a network element. Ohio, Arizona, Arkansas, Georgia, Illinois, Massachusetts, Minnesota, Missouri, Oregon, Rhode Island, and Tennessee expressly rejected the "currently in use" interpretation.

2. Impairment

Having argued that Dark Fiber is a network element, Vitts goes on to contend that the standard by which the Commission should judge whether Dark Fiber must be unbundled is set out in Section 251(d)(2)(B). That test, according to Vitts, is whether failure to provide access to the network element would impair the ability of a CLEC to provide the service it seeks to offer. Vitts argues that the impairment standard is met if the quality of service which the CLEC can offer declines or the cost of providing the service increases when the CLEC is deprived of access to the network element, citing the FCC's ruling in its Local Competition Order, 285 and Iowa Util. Bd v. FCC, 120 F.3d 753, 812 (8th Cir. 1997). Vitts claims that its ability to offer services and the costs of providing service will be impaired without access to Dark Fiber.

Without Dark Fiber, Vitts argues, it will not be able to monitor its own network and will necessarily have to rely on Bell Atlantic, its competitor, to troubleshoot problems on its own network. Without Dark Fiber, Vitts claims, its planned SONET ring topography will require additional multiplexers, increasing the cost and the number of possible failure points. Without Dark Fiber, Vitts estimates construction costs for building its own fiber network will be $7.1 million, or $55,000 per mile, making the plan cost-prohibitive.

3. Implementation

Vitts recommends that Bell Atlantic reserve enough Dark Fiber to accommodate three years of projected growth on a particular route. In the future, according to Vitts, capacity of fiber will increase, allowing more traffic on a single fiber, thereby making a three year projection more than sufficient. Vitts also recommends that Dark Fiber be priced using Bell Atlantic's TELRIC study and rates approved in Massachusetts.

B. Bell Atlantic

1. Definition

Bell Atlantic argues that "used" in the TAct definition of network element means "currently used." According to Bell Atlantic, only those fiber optic strands, within an installed fiber optic sheath, which are currently connected to the electronics necessary to enable them to transmit telecommunications services are "used in the provision of telecommunications service" as required by the definition. Dark Fiber is not so connected. Nor does it currently transmit telecommunications information for a fee to the public, pursuant to the TAct's definition of "telecommunications service." Therefore, Bell Atlantic contends, Dark Fiber is not used in the provision of telecommunications services and cannot be a network element.

The fact that some Dark Fiber is categorized as used and useful for the purposes of accounting and ratemaking, does not drive the decision as to whether Dark Fiber is a network element, Bell Atlantic argues. The Commission's accounting standards reflect a policy of encouraging prudent network planning by allowing recovery of investment for a whole sheath when one strand has been lit. That policy, however, Bell Atlantic contends, merely makes use of an accounting convention and does not represent a judgment of whether the unlit portions of the sheath are "used in the provision of telecommunications services" under the TAct.

Bell Atlantic further argues that Dark Fiber is not equivalent to dark copper. Bell Atlantic asserts that copper can sometimes be used directly to provide a telecommunications service without first being lit, e.g., 1000 grade private line. Hence, according to Bell Atlantic, dark copper is appropriately a network element but dark

fiber is not.

2. Impairment

Bell Atlantic agrees that the impairment standard is described in Section 251(d)(2)(B) but disputes Vitts' claim of impairment. First, Bell Atlantic argues that provision of a shared, lit, ring configuration using Bell Atlantic multiplexers would be at least equal to the quality of service Vitts would obtain using Dark Fiber. The failure rate of its multiplexers in the entire Bell Atlantic region is, according to Bell Atlantic, .0007%, with a corresponding reliability factor of 99.9993%. Therefore, the addition of multiplexers, while it does increase the number of possible failure points, does not actually decrease the quality of service. Potential failures are too unlikely, Bell Atlantic claims, to make the number of multiplexers a reasonable gauge of reliability.

Second, Bell Atlantic argues that Vitts has not demonstrated any increased costs occurring as a result of not getting Dark Fiber as an unbundled network element. No evidence was adduced, Bell Atlantic claims, other than speculation, with respect to any increase in cost.

Bell Atlantic asserts that the eight point Dark Fiber configuration that Vitts requests is unavailable because Bell Atlantic's central offices face fiber exhaustion at three of those eight points. Bell Atlantic suggests an alternative shared lit fiber ring architecture (SLRA). The SLRA, as described in Bell Atlantic's Exhibit 24, would use only a small fraction of each multiplexer. Furthermore, Bell Atlantic asserts the SLRA would likely result in a cost advantage to Vitts. No pricing figures are available on the SLRA costs, however, because Vitts refused to discuss the SLRA alternative.

The SLRA alternative is in the best interest of New Hampshire, Bell Atlantic contends, because it would avoid the disruption of Bell Atlantic network planning and service provisioning and avoid the substantial increased costs of network rearrangements that unbundling Dark Fiber would trigger. The Shared Ring Architecture alternative provides a sharing of existing fiber and multiplexer capacity, thereby creating network efficiencies and cost savings, argues Bell Atlantic.

3. Implementation

Bell Atlantic argues that if the Commission decides Dark Fiber would be unbundled, technical problems arise regarding security, maintenance, testing, repair, inventory, provisioning, and billing. Bell Atlantic can provide access to dedicated Dark Fiber at a Bell Atlantic central office or at a customer premise. However, according to Bell Atlantic, access to Dark Fiber at other locations such as plant splices, outside plant remote termination locations, controlled environment vaults and huts, are not technically feasible or, at the very least, pose operational difficulties that the Commission should minimize.

Bell Atlantic also contends that, if the Commission decides to reserve a sufficient level of spare fiber to provide growth, emergency restoration, and maintenance, warehousing or storage of unused dark fiber for future use by Vitts should be precluded and conditions should be imposed to insure reasonably prompt use of fiber.

Bell Atlantic recommends, if unbundling is necessary, that the Commission permit Bell Atlantic to reserve eight spare fibers in the local loop and twenty-four spare fibers in the heavily trafficked interoffice fiber cable sections.

C. OCA

The OCA argues that Dark Fiber is a network

element and should be unbundled. In addition to supporting Vitts' position in all respects, the OCA argues all Dark Fiber to which Vitts is denied access should be removed from rate base. The OCA argues that Bell Atlantic should not be able to claim Dark Fiber as "used and useful" for accounting purposes and at the same time claiming Dark Fiber is not "used" for interconnection purposes. Therefore, the OCA contends, if the Commission were to rule that Dark Fiber is not used as a network element, Bell Atlantic should not be allowed to include Dark Fiber in future rates and should refund to customers the amounts collected on the basis that Dark Fiber is used and useful. Removing Bell Atlantic's ability to earn on Dark Fiber will act as an incentive, the OCA believes, for Bell Atlantic to become an active proponent of competition.

In the affirmative, the OCA posits that Dark Fiber is used for the provisioning of telecommunications services. Fiber optic strands are similar in function to copper pairs, the OCA asserts, in that they both act as an information transmitting medium within a telecommunications system. The OCA contended that the only distinction between fiber and copper is in the type of technology deployed, not the purpose or function of those technologies within the system. That being so, the two technologies should be treated the same in the OCA's view: as unenergized copper is considered a network element, so too should Dark Fiber be considered a network element.

D. Staff

1. Definition

The Commission Staff argues that the definition of network element has been decided finally by the 8th Circuit court in Iowa Utilities Board v. FCC, 120 F.3d 753 (1997). In that decision, the 8th Circuit affirmed network element status for elements whose use is "implicated" by the offering of phone services. Id. At 807. As a result, directory assistance, caller I.D., call forwarding, and call waiting are network elements. Staff argues that the 8th Circuit decision undermines Bell Atlantic's reasoning that Dark Fiber is not a network element because Dark Fiber does not presently transport telecommunications without additional electronics, i.e., is not currently in use. Citing Telecommunications Corporation Petition to Establish an Interconnection Agreement with Central Telephone Company of Illinois (Sprint), 96 AB-009 (February 5, 1997), Staff contends that the FCC definition wording means "what is customarily employed for the purpose."

Staff characterizes Dark Fiber as spare capacity within the fiber optic cable sheath. Staff argues that the actual element Vitts requests is the spare capacity within the sheath, not the spare capacity of the individual fiber strand. The similarity to copper, Staff argues, is inescapable, supporting its argument with physical exhibits of copper and fiber, and has been recognized by a number of state commission orders.

2. Impairment

Access to a network element, Staff agrees, is governed by Section 251 (d)(2)(B), which states that access must be granted where failure to provide access would impair the ability of the carrier to provide the services it seeks to offer. Staff contends the 8th Circuit interpreted this section as not including an inquiry on whether a network element could be obtained elsewhere. Iowa Utils.Bd. at 811. Therefore, Staff argues, Bell Atlantic's arguments about the availability of SLRA is irrelevant to the impairment question. Vitts is impaired, Staff maintains, because without Dark Fiber Vitts' ability to provide service will be significantly delayed and will cost more. Staff argues that

those consequences mean that Vitts has met the impairment standard.

3. Implementation

Staff recognizes that unbundling Dark Fiber requires steps to insure that Dark Fiber is not warehoused, either by competitors or by Bell Atlantic. Staff reviewed various methods by which other states have dealt with warehousing and with the need to insure Bell Atlantic retains enough spare capacity for growth, emergency service restoration, and maintenance and repair. These methodologies run the gamut from a specific percentage of Dark Fiber (25% in a particular feeder segment) to a general prohibition against reserving Dark Fiber which is not demonstrably necessary to meet individual short-term service needs. Staff recommends that Bell Atlantic be permitted to reserve only the fiber necessary to cover projected growth for three years based on the past three years, and that the Commission order an arbitration process for dealing with contested requests for Dark Fiber, consisting of a Bona Fide Request and a 20-day "fast track" arbitration, to resolve disputes over fiber availability. The process Staff recommends mirrors that ordered by Rhode Island's Commission for Dark Fiber and that ordered by the Commission itself in DE 96-252 for pole space. According to Staff, such a process would provide flexibility to move with the changing market demand and insure that disputes are resolved quickly.

IV. COMMISSION ANALYSIS

The issue presented here is whether Bell Atlantic's Dark Fiber is a Network Element that is subject to the unbundling requirements of §251(c)(3) of the TAct, an issue that the FCC left unresolved in its local competition order (¶450). A network element, as the parties and Staff agree, is defined by the TAct as "a facility or equipment used in the provision of a telecommunications service." 47 U.S.C.§153 (29). The Commission rules provide the same definition. NH Admin. Rules Chapter Puc 1302.11. Our first task, therefore, having carefully reviewed the extensive record in this case, is to interpret this definition and decide if Dark Fiber comes within its ambit.

We do not find persuasive Bell Atlantic's interpretation of the definition of network element. Bell Atlantic contends that the substance of a telecommunications service is the transmission of information. Bell Atlantic reasons that because Dark Fiber does not transmit information, it is not used to provide a telecommunications service. The nub of Bell Atlantic's argument is that Dark Fiber is not "currently used."

The more reasonable interpretation is that posited by Vitts and by Staff. They contend that "used" refers to that which is customarily employed for the purpose, or, as Vitts states "intended for and capable of use" for the purpose. For example, fiber optic cable is customarily employed by telecommunication carriers for the purpose of providing a telecommunications service. At least at the current time, fiber is a facility that is not used for any purpose other than telecommunications service; its sole purpose is telecommunications. Furthermore, as Staff pointed out, the fact that Dark Fiber is not currently used in the provision of service to customers for a fee does not distinguish it from other network elements. Most parts of the network are designed to have spare capacity and fiber is no exception. We presume that is why Bell Atlantic's accounting records report, as used and useful, all fiber sheath which has even one lit strand.

We consider the TAct's provision for network

element unbundling as designed to preclude incumbent LECs from reserving all spare capacity for themselves. This view is consistent with the FCC's expansive interpretation of the term "network element" to include features, functions and capabilities of facilities and equipment. It is also consistent with the 8th Circuit's affirmation of the FCC's broad interpretation in Iowa Utilities Bd. This interpretation furthers the purpose of the TAct to "jumpstart competition in the local telecommunications industry." Id. At 811. Having interpreted the definition of network element consistent with the FCC, we find that the fiber sheath is the network element, spare capacity of which (Dark Fiber) must be unbundled pursuant to §251(c)(3).

As is uncontroverted, the impairment standard is satisfied if without access to Dark Fiber the quality of Vitts' services would be lower or the cost of Vitts' service would be higher. Iowa Utils.Bd., 120 F.3d at 812. This is the 8th Circuit's interpretation of §251(d)(2)(B), the relevant standard, which states that a network element must be unbundled by an ILEC when "the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services it seeks to offer."

Our inquiry into whether these effects will flow from denial of access to Dark Fiber need not include an investigation as to whether Vitts has an alternate source for the network element. The 8th Circuit determined that generous unbundled access to network elements is necessary in order to expedite the arrival of competition in local telephone markets, i.e., to achieve the goal of the TAct. "Allowing incumbent LECs to evade their unbundling duties whenever a network element could be obtained elsewhere would eviscerate unbundled access as a means of entry and delay competition." Id. At 811.

Nonetheless, even though our inquiry need not encompass an examination of alternative routes to Vitts' goal, Bell Atlantic testified about an alternative method for Vitts to obtain a fiber ring via a SLRA. We find that the SLRA described by Bell Atlantic does not provide Vitts with service quality and costs equal to that provided by a dedicated Dark Fiber SONET ring. The SLRA does not enable Vitts to monitor and maintain service to a given geographic area. The proposed dedicated ring architecture using Dark Fiber enables a carrier to detect electronic problems in a cable and redirect service so a customer experiences no interruption. Response time would be faster with a dedicated ring. This ability is important to businesses where service quality is better maintained via dedicated rings. In addition, the SLRA requires Vitts to connect its own multiplexers to Bell Atlantic multiplexers. We are convinced that the increased number of multiplexers adds additional failure points, diminishing the quality of Vitts' service. We are convinced also that the cost of Vitts' service will increase if it uses the SLRA. Thus, even if we were required to deny access to Dark Fiber only if an alternative network element were available, our decision would be the same. No alternative network element is available and the alternative methodology described by Bell Atlantic is not equal to the Dark Fiber methodology.

Turning away from the unnecessary comparison of Vitts' service over a dedicated ring versus shared ring architecture, we find that Vitts' ability to provide service will be impaired if it is denied access to Dark Fiber. Building its own fiber network to connect its eight sites is cost prohibitive. We are convinced that denying access to this network element will undermine Vitts' ability to compete.

We accept Staff's arguments regarding technical feasibility. Technical feasibility, while not dispositive as to whether a network element must be unbundled, remains a consideration as to where unbundled access may occur. Iowa Utils. Bd. at 810. It is undisputed that access to Dark Fiber is technically feasible at Bell Atlantic central offices and at customer premises. Staff argued to our satisfaction that access is also feasible at outside plant remote terminal locations. Such access must reasonably address Bell Atlantic's concerns. Therefore, we will require Vitts to engage Bell Atlantic personnel to perform splices and allow splicing only at existing termination points, including such facilities as digital loop carriers and central office terminals.

Implementing the unbundling of Dark Fiber requires consideration of Bell Atlantic's status as carrier of last resort. All parties and Staff agree that Bell Atlantic should retain enough spare fiber to meet short-term service needs. They testified to two methods for achieving that status: allowing Bell Atlantic to reserve the amount projected as adequate for three years, or allowing Bell Atlantic to reserve 8 spare fiber strands in the local loop and 24 spare fiber strands in interoffice cable sections.

We choose to deal with the issue on a case-by-case basis in the context of a bona fide request and 20-day fast-track arbitration process, as suggested in Staff's brief. We approved this process in Docket DE 96-252 for reservation of space in rights-of-way, conduits and poles. We will apply this process in instances where fiber exists today and in the future where it exists as a result of future building or deployment. LECs need not build out or deploy fiber where it has not yet been installed. At issue in this fast-track arbitration will be whether the LEC is reserving Dark Fiber which is not demonstrably necessary to meet its individual short-term service needs. As in the process we ordered for resolving disputes over space in rights-of-way, we will allow Bell Atlantic 30 days to reply in writing to a request for access to dark fiber. If Bell Atlantic denies the access requested, Bell Atlantic shall include in its written reply the reason the request cannot be granted. The reason must be specific and include the following: total number of fiber sheath and strands between points on the requested routes, number of strands currently in use and the transmission speed on each strand (e.g. OC-3, OC-48), the number of strands in use by other carriers, the number of strands reserved for Bell Atlantic's use, the number of strands lit in each of the three preceding years, the estimated completion date of any construction jobs planned for the next two years or currently underway, and an offer of any alternate route with available dark fiber. In addition, for fibers currently in use, Bell Atlantic shall specify if the fiber is being used to provide non-revenue producing services such as emergency service restoration, maintenance and/or repair. We reserve the right in the future to establish more specific criteria for reservation of Dark Fiber in light of experience gained during the arbitration process.

Implementing the unbundling of Dark Fiber also requires that we impose conditions on CLECs to insure they, like Bell Atlantic, are precluded from warehousing Dark Fiber. A bona fide request for Dark Fiber, at a minimum, shall consist of a description of the requested route, the planned service offering, and the intended use of the requested Dark Fiber. The CLEC shall commence the intended use of the requested Dark Fiber within a reasonably prompt period of time from the date of its receipt as an unbundled network element. Commencement of intended use means

completion of all preparations rendering the Dark Fiber capable of providing the planned service offering to customers. If the CLEC does not commence the intended use of the requested Dark Fiber within a reasonably prompt period, any carrier may petition the Commission for a fast-track arbitration process, as described above, to consider whether the CLEC is reserving Dark Fiber which is not demonstrably necessary to meet its short-term service needs.

Until other pricing has been approved for New Hampshire, we adopt Bell Atlantic's TELRIC cost study submitted to and rates approved by the Massachusetts Department of Public Utilities on December 4, 1996.

In order to ensure that New Hampshire consumers obtain the benefit of this decision, we require Bell Atlantic to cooperate fully with Vitts to determine the availability of Dark Fiber between the points on Vitts' proposed ring architecture. Cooperation includes but is not limited to providing Vitts with information on available existing fiber and information on how Vitts can bridge or otherwise manage gaps in the Dark Fiber ring architecture.

Based upon the foregoing, it is hereby

ORDERED, that Dark Fiber is a network element subject to the unbundling requirement of § 251 of the Telecommunications Act of 1996; and it is

FURTHER ORDERED, that Bell Atlantic shall provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to Dark Fiber on an unbundled basis; and it is

FURTHER ORDERED, that disputes about the availability of Dark Fiber shall be resolved using a fast track arbitration process as described herein.

By order of the Public Utilities Commission of New Hampshire this nineteenth day of May, 1998.

Douglas L. Patch	Bruce B. Ellsworth	Susan S. Geiger
Chairman	Commissioner	Commissioner

Attested by:

Thomas B. Getz
Executive Director and Secretary

ATTACHMENT

CTC-07

5.16 Dark Fiber

5.16.1 Description

A. Dark fiber provides a TC with a continuous fiber optic strand within an existing, in-place Telephone Company fiber optic cable sheath solely for use in the provision of telecommunications services.

1. A strand is not considered continuous if splicing is required to provide fiber continuity between locations. If a fiber strand can be made continuous by joining fibers at existing splice points within the same sheath, including currently jointed lateral sheaths within the same splice closure, the Telephone Company will perform such splicing at the TC's request on a time and materials basis.

2. A minimum quantity of two fiber strands is required.

B. Dark fiber is only available where in-place, spare facilities exist. The Telephone Company will not construct new or additional facilities and will not introduce additional splice points to accommodate dark fiber requests.

C. The Telephone Company will provide access to the following types of Dark Fiber, where available, between the following locations:
   1. TC collocation arrangements at existing hard termination points
   2. TC collocation arrangements and the TC's CO/POP
   3. the TCs collocation arrangement and end user's premises
   4. TC collocation arrangement and outside plant remote terminal locations.

D. Dark fiber is provided subject to the availability of facilities on a first-come, first-served basis. Reservations for dark fiber are not accepted.

E. In order to maintain the integrity and reliability of the VZ-NH network, VZ-NH will reserve a reasonable quantity of fibers in any cable, depending upon the total number of fibers in the cable, to be designated as maintenance spares in order to effect emergency repairs or network rearrangements, but only as demonstrably necessary to meet its individual short-term service needs. These maintenance spares will not be available for lease as Unbundled Dark Fiber.

F. If the TC requests Unbundled Dark Fiber pairs that VZ-NH has allocated for another customer (e.g., they have been installed or allocated to serve a particular customer in the near future), or for growth or survivability in a particular part of its network as demonstrably necessary to meet its individual short-term service needs, VZ-NH shall not be required to lease such dark fiber pairs as Unbundled Dark Fiber.

5.16 Dark Fiber (Cont'd)
5.16.1 Description (Cont'd)

G. Unbundled dark fiber may be accessed at existing hard termination points (e.g., fiber distribution frames, industry standard mechanical fiber connectors).

H. The Telephone Company's Telecom Industry Services Operations Center (TISOC) will be the single point of contact for all unbundled dark fiber requests.

5.16.2 Cable Records Review

A. Prior to ordering dark fiber, a TC must submit a written inquiry to the Telephone Company to conduct a review of its existing cable records to determine whether spare dark fiber is available.

B. Written inquiries regarding dark fiber availability must designate the two locations between which dark fiber is desired and the quantity of fiber pairs requested. Each inquiry must specify two locations only. Additional locations will require additional requests.

C. The Telephone Company will respond within thirty (30) days from receipt of the TC's request, indicating whether Unbundled Dark Fiber may be available based on the records search.. For voluminous requests or large, complex projects, VZ-NH reserves the right to negotiate a different interval.

D. If Unbundled Dark Fiber is available, the Telephone Company will notify the TC and provide the estimated mileage and number of intermediate offices, if applicable. The Telephone Company will also provide an estimate of the applicable rates and charges when the records indicate spare dark fiber may be available. The Telephone Company makes no guarantee as to the length of time the fiber will remain spare.

E. If access to Unbundled Dark Fiber is not available, VZ-NH will notify the requesting TC in writing within thirty (30) days from receipt of the TC's request. VZ-NH will include the following in its written response to the TC, to comply with the NH Order: the specific reason the request cannot be granted, the total number of fiber sheaths and strands between points on the requested routes, the number of strands currently in use and the transmission speed on each strand (e.g. OC-3), the number of strands in use by other carriers, the number of strands reserved for VZ-NH's use, the number of strands lit in each of the three preceding years, the estimated completion date of any construction jobs planned for the next two years or currently underway, and an offer of any alternate route with available dark fiber. In addition, for fibers currently in use, VZ-NH shall specify if the fiber is being used to provide

5.16.2 Cable Records Review

E. (Cont'd)

non-revenue producing services such as emergency service restoration, maintenance, and/or repair. The TC will be billed a non-recurring charge for cable documentation per request to reimburse VZ-NH for the costs incurred in providing the TC with the documentation described in this provision.

5.16.3 Fiber Layout Map

A. At the option of the TC, the TC may request a fiber layout map for a wire center for preliminary design purposes only. The map will show the routes within the wire center where there are existing Telephone Company fiber cable sheaths.

1. Fiber layout maps are based upon the Telephone Company's existing records and are provided subject to a proprietary agreement. Said agreement shall limit disclosure to personnel of the TC that have a need for fiber layout information solely for the purpose of designating the TC network.

2. A TC's written request for a fiber layout map for a wire center shall be sent to the service delivery engineer in the TISOC. The Telephone Company will charge the TC requesting the map on a time and materials basis for all work performed by the Telephone Company in connection with creating the map. Before undertaking any work to create the map, the Telephone Company will provide the TC with a written estimate of the time and cost associated with creating the map. The Telephone Company will proceed with the work to create the map only upon receipt of the TC's written authorization and full payment of the estimated charges. Upon completion of the work to create a map, the Telephone Company will provide the TC with a final statement of the total costs incurred to perform the work and either issue a bill or provide a credit for the difference between the estimated and actual costs.

3. If another TC submits a written request for a fiber layout map for the same wire center, the Telephone Company will provide the map to the other TC subject to the same non-disclosure agreement. The Telephone Company will charge the TC requesting the map on a time and materials basis for all work performed by the Telephone Company to reproduce and update the map. Before undertaking any work to reproduce and update the map, the Telephone Company will provide the TC with a written estimate of the time and cost associated with providing the map. The Telephone Company will proceed with the work to reproduce and update the map only upon receipt of the TC's written authorization and full payment.

5.16.4 Field Survey

At the option of the TC, the TC may request a field survey in order to verify the availability of dark fiber pairs and that such pairs are not defective or have not been used by Telephone Company personnel for prior emergency restoration activity. Fiber pairs will be tested by placing a light source on the individual fibers and measuring the end-to-end loss utilizing industry standard fiber optic test equipment. Results will be documented and provided to the TC. Unless and until an order is placed, the fiber identified in a field survey remains available to satisfy other requests.

5.16.5 Testing

In cases where a field survey is declined, the TC may request initial or subsequent testing of dark fiber to determine actual transmission requirements will be performed at the TC's request on a time-and-materials basis. If the TC subsequently determines the unbundled dark fiber provided by the Telephone Company is not suitable, the TC must submit a request to disconnect the unbundled dark fiber.

5.16.6 Telephone Company Obligations

A. The Telephone Company does not guarantee or make any warranty with respect to the accuracy or completeness of its cable records.

B. All required provisioning work will be performed by VZ-NH personnel, using current VZ-NH approved methods.

C. Dark fiber, where available, conformed to those Telephone Company standard transmission characteristics in place at the time the fiber was installed. The Telephone Company will not re-terminate or re-splice fibers in order to improve transmission characteristics.

D. The Telephone Company does not guarantee the transmission characteristics of dark fiber will remain constant over time.

E. Where dark fiber terminates at a non-Verizon serving wire center, the Telephone Company will place fiber jumpers between its fiber distribution panel and the TC's demarcation point.

F. Where dark fiber terminates at a collocation arrangement, the Telephone Company will place a fiber jumper connecting the pair on the Telephone Company's fiber distribution frame to the TC's fiber cross connects (fiber ties) on the POT bay.

5.16. Dark Fiber (Cont'd)

5.16.6 Telephone Company Obligations (Cont'd)

G. The Telephone Company will provide intermediate cross-connections between fiber distribution frames in intermediate wire center(s).

H. The Telephone Company reserves the right to petition for relief from its obligation to provide dark fiber if it believes that a TC request would strand an unreasonable amount of fiber capacity or would result in service disruption or degradation of service to other customers.

I. In the event the Telephone Company must perform emergency cable restoration to its own facilities, all efforts will be made to restore the TC's leased unbundled dark fiber pairs in the same manner as other fibers in the same cable sheath using Telephone Company standard restoration procedures.

5.16.7 TC Obligations

A. The TC assumes all risks of ordering dark fiber based solely on the Telephone Company's cable records review including, cancellation charges if it is subsequently determined that dark fiber is not available.

B. The TC is responsible for determining whether the transmission characteristics of the dark fiber provided by the Telephone Company will accommodate its requirement.

C. The TC is responsible for obtaining all rights of way, conduit, duct and pole space required for any TC-provided cable.

D. The TC is responsible for obtaining any governmental or private property permit, easement or other authorization or approval required for access to dark fiber.

E. Establishment of applicable fiber optic transmission equipment or intermediate repeaters needed to power unbundled dark fiber in order to transmit information is the responsibility of the TC.

F. The TC assumes all risks associated with the unforeseen introduction of future splices on dark fiber.

5.16. Dark Fiber (Cont'd)
5.16.7 TC Obligations (Cont'd)

G. The TC is responsible for establishing a fiber patch panel in the buildings main telco room or at a location determined by the Telephone Company which will serve as the demarcation point when dark fiber terminates in a location other than a Telephone Company wire center.

H. If the TC's collocation arrangement was not established with fiber cross connects , the TC is responsible for augmenting its collocation arrangement with the proper cross connects before it submits an order for unbundled dark fiber.

I. The TC accepts the environmental risks inherent in outside plant construction.

J. Upon notification by the Telephone Company, the TC must also agree to cooperate with the Telephone Company for normal cable maintenance activity (e.g., cable rearrangements, etc.).

5.16.8 Billing of Rates and Charges

The Telephone Company will commence billing applicable NRCs and monthly rates for unbundled dark fiber upon completion of the service order on the requested due date.

For purposes of mileage calculations, the mileage measurement to be used to calculate the per mile monthly rate for Unbundled Dark Fiber (Section 5.16.3(B)(2)) is calculated on the airline distance between the two locations. To determine the mileage charges to be billed, first compute the mileage using the V&H coordinates method, as set forth in the NATIONAL EXCHANGE CARRIER ASSOCIATION, INC. TARIFF, F.C.C. No. 4. If the calculation results in a fraction of a mile, always round up to the next whole mile before determining the mileage. Then multiply the mileage by the appropriate per mile rate. The amount to be billed shall be the product of this calculation.

In cases where interconnection at a remote terminal renders other portions of the fiber unusable or stranded, a recurring charge will apply per fiber pair, per mile, based on airline mileage utilizing the V&H coordinate method.

5.16.9 Request for Service Date Change

A. The TC may submit to the TISOC a written supplement to the original ASR requesting a change of service date for the unbundled dark fiber request, but the new service date may not exceed the original service date by more than thirty calendar days. The TC will be billed a service date change charge (NRC) to delay the start of service.

5.16 Dark Fiber (Cont'd)

5.16.9 Request for Service Date Change (Cont'd)

1. If the TC's requested service date is more than thirty calendar days after the original service date, or if the TC is unable to accept the unbundled dark fiber within thirty calendar days of the original service date, the TC's order for unbundled dark fiber will be cancelled by the TISOC representative on the thirty-first day and cancellation charges will apply. In addition, the pairs requested will not be reserved for the TC and will be returned to available inventory.

5.16.10 Application of Rates and Charges

A. Monthly Rates

(1) The Dark Fiber Mileage rate applies on a per mile basis, per fiber pair as set forth in Section 5.16.4(A) following.
(2) The Serving Wire Center rate applies, per fiber pair, for each end originating or terminating at a Telephone Company office as set forth in Section 5.16.11(A) following.
(3) The Fixed Cost Per Customer Premises Charge applies, per fiber pair, for each end originating or terminating at a non-Telephone Company office as set forth in Section 5.16.11(A).
(4) The Fixed Cost per Intermediate Central Office applies, per fiber pair, for each intermediate central office in which the fiber pair is routed as set forth in Section 5.16.11(A).
(5) The Fixed Cost per Remote Terminal applies, per fiber pair, for each end terminating or originating at a remote terminal as set forth in
(6) The Fixed Cost per TC CO/POP applies, per fiber pair, for each end terminating or originating at a TC CO/POP as set forth in Section 5.16.11(A).
(7) The Unusable Dark fiber per Mile Charge applies on a per mile basis, per fiber pair as set forth in Section

B. Nonrecurring Charges

(1) A Service Order charge applies, per service order, as set forth in Section 5.16.11(B) following.
(2) A Records Review charge applies, per pair, as set forth in Section 5.16.11(B) following.

5.16.10 Application of Rates and Charges (Cont'd)

(3) A CO Wiring Charge applies, per service order, as set forth in Section 5.16.11(B) following.
(4) A Provisioning charge applies, per service order as set forth in Section 5.16.11(B) following.
(5) A Field Installation Charge applies, per service order as set forth in Section 5.16.11(B) following.
(6) An Intermediate Office Charge applies, per intermediate office, per fiber pair as set forth in Section 5.16.11(B) following.

C. Other Charges, Time and Materials

(1) Where applicable, time and material charges to produce the Fiber Layout Map will apply as set forth in Section 5.16.11(C) following.
(2) Where applicable, time and material charges to conduct the Field Survey will apply as set forth in Section 5.16.11(C) following.
(3) Where applicable, time and material charges to perform Splicing work will apply as set forth in Section 5.16.11(C) following
(4) Where applicable, time and material charges to conduct Testing will apply as set forth in Section 5.16.11(C) following

5.16.11 Rates and Charges

A Monthly Charges

Monthly Rates

Dark Fiber Per Mile Cost	$69.98
Fixed Cost Per Serving Wire Center	$4.44
Fixed Cost per Customer Premises	$6.06
Fixed Cost Per Intermediate Central Office	$8.10
Fixed Cost Per Remote Terminal	$10.37
Fixed Cost Per CLEC CO/POP	$6.38
Unusable Dark fiber Per Mile Cost	$34.55

B. Nonrecurring Charges

	Nonrecurring Charges	Expedited Nonrecurring Charges
(1) Dark Fiber		
Service Order		
-per fiber pair	$61.39	$90.39
C.O. Wiring	$48.96	$63.47
Provisioning	$285.05	$386.42
Field Installation	$142.99	$193.22
(2) Records Review		
-per fiber pair	$1,197.39	
(3) Intermediate Office		
- per intermediate office, per fiber pair	$48.96	$63.47

C. Other Charges,Time and Materials

	Normal	Expedite
(1) Fiber Layout Map (per hour or fraction thereof)		
Service Delivery Engineer		
Network Transport Engineering –Planning	$50.03	$67.37
Network Transport Engineering –Design	$50.03	$67.37
(2) Field Survey (per hour or fraction thereof)		
Service Delivery Engineer		
Network Transport Engineering –Planning	$50.03	$67.37
Network Transport Engineering –Design	$50.03	$67.37
Outside Plant Operations (splicer)	$45.21	$58.20
Central Office Frame (COF)	$42.95	$59.68

5.16.11 Rates and Charges (Cont'd)

	Normal	Expedite
(3) Splicing (per hour or fraction thereof)		
Outside Plant Operations (splicer)	$45.21	$58.20
Central Office Frame (COF)	$42.95	$59.68
(4) Testing (per hour or fraction thereof)		
Outside Plant Operations (splicer)	$45.21	$58.20
Central Office Frame (COF)	$42.95	$59.68

ATTACHMENT

CTC-08

Dark Fiber Inquiry Form **Inquiry Number:** CTCCBURLWLST8-27-1ML

CLEC Section (E-mail form to une.dfi@verizon.com)

CLEC Name	CTC Communications	Date Sent	8/27/01
CLEC Contact	Craig Cucchiara	Tel Number	781.522.8667
Street	220 Bear Hill Rd	Fax Number	781.522.8798
Floor/Room			
City & State	Waltham MA 02451	E-Mail	ccucchiara@ctcnet.com

Location Information Section

Primary Location	VZ Central Office	POI CLLI	BURLVTMA
Street	266 Main Street		
City & State	Burlington VT 05401	LATA	124
Additional Information			
Secondary Location	CTC Central Office	XPOI CLLI	WLSTVT07
Street	1193 South Brownell Rd		
City & State	Williston VT 05495	NPA-NXX	802-652
Additional Information	this is a CTC POP with VZ fiber entrance facilities		

Number Of Fiber **Pairs** Required (Each Pair Equals 2 Strands) 2

Service Delivery Engineer (SDE) Information Section

Date Received	08/27/01	Date Forward to Engineering	08/28/01
SDE	Michelle Lawrence	Tel Number	617 743-6748
Street	125 High St., RM 1256	FAX Number	617 261-6461
City & State	Boston, MA 02110	E-Mail	michelle.b.lawrence@verizon.com
Date Reply To CLEC	09/05/01		

Engineering Information Section

Date Received	8/28/01	Reply To SDE By	09/13/01
Engineer	Harv Tasch	Reply Date	9/5/01
Street	140 West Street	Tel Number	
City & State	New York, NY, 10007	FAX Number	
Organization	IOF Planning	E-Mail	
Comments	NO DIRECT ROUTE BURLVTMA-WLSTVT07 NO FIBERS		

Fibers Available To Meet Request (Y/N) N If NO, Number Of Fiber **Pairs** ##

To Be Completed By Engineering:

Description	Miles	Work Activity (Hours)
Mileage for Available Dark Fiber		
Planning Engineer Hours – TM1DA (North Only)		0.5
Design Engineer Hours – TM1DB (North Only)		

NOTICE: This does not constitute an order for Dark Fiber. To order available Dark Fiber, the CLEC must follow-up with an ASR delivered to Verizon as soon as possible following notification of availability. Until an ASR is received by Verizon, Dark Fiber remains in inventory and available for Verizon use and/or to meet other CLEC requests. Verizon does not reserve Dark Fiber.

Information contained in this response is based solely upon a review of Verizon's cable records. Verizon makes no representation or warranty regarding the accuracy or completeness of such records. The CLEC has the option of requesting Verizon perform a field survey at the CLEC's expense to verify Dark Fiber availability. Should the CLEC decline the field survey and place an order for Dark Fiber based solely on the information contained in this response, the CLEC assumes all risks of relying on such records.

ATTACHMENT

CTC-09

Bell Atlantic
Wholesale Network Services
125 High Street, Rm. 1134
Boston, MA 02110

Richard Sweeney
Collocation Manager – North
(617) 743-3077

December 15, 1999

Mr. Richard C. Riley
CTC Communications Corp.
220 Bear Hill Road
Waltham, MA 02451

VIA E-MAIL

Dear Richard:

This letter is to inform you of the construction schedule and estimated cost associated with completing the following request for physical collocation:

Control No.	Application ID	Central Office	CLLI code	State	CLEC Cage Build Date
P9911-0630	41001	Providence	PRVDRIBRHAN	RI	1/13-1/23

Bell Atlantic is able to accommodate the above request with 144 square feet of collocation space within the specified central office. The dimensions of the available space are approximately 14'4"x10'.

The construction schedule is as follows:

Milestone	Date
Application received by Bell Atlantic	11/24/99
Project construction completion date	05/15/00*

*Please note: This date is beyond the regulatory date due to the large number of applications received on the same day.

In accordance with the FCC tariff, the flat rate, non-recurring charges are estimated to be $58,177.12. You did not submit a deposit with the application. Please pay $29,088.56 (50%) within 30 days of receipt of this letter. The 50% balance ($29,088.56) will be due upon cage completion. Please refer to the tariff if you have any questions concerning the costs listed above.

Bell Atlantic no longer provides enclosure for physical collocation. In accordance with the FCC tariff, building a cage is optional and you are not required to have a cage enclosure. Should you choose to build a collocation cage, the space will be available to your pre-approved vendor as of the "CLEC Cage Build Date", noted above.

Please contact Cheryl Mann 617-743-3183, the Local Collocation Coordinator for this site or your Project Manager, James Hunter, at 301-982-6555 if you have any questions regarding this site.

Sincerely,

Richard Sweeney/tml
Collocation Manager – North

cc: C. Mann
J. Hunter

Bell Atlantic
Wholesale Network Services
125 High Street, Rm. 1134
Boston, MA 02110

Richard Sweeney
Collocation Manager – North
(617) 743-3077

December 15, 1999

Mr. Richard C. Riley
CTC Communications Corp.
220 Bear Hill Road
Waltham, MA 02451

VIA E-MAIL

Dear Richard:

This letter is to inform you of the construction schedule and estimated cost associated with completing the following request for physical collocation:

Control No.	Application ID	Central Office	CLLI code	State	CLEC Cage Build Date
P9911-0631	41002	E. Providence	EPRVRINBHAL	RI	1/13-1/23

Bell Atlantic is able to accommodate the above request with 144 square feet of collocation space within the specified central office. The dimensions of the available space are approximately 10'x14'4".

The construction schedule is as follows:

Milestone	Date
Application received by Bell Atlantic	11/24/99
Project construction completion date	05/15/00*

*Please note: This date is beyond the regulatory date due to the large number of applications received on the same day.

In accordance with the FCC tariff, the flat rate, non-recurring charges are estimated to be $58,177.12. You did not submit a deposit with the application. Please pay $29,088.56 (50%) within 30 days of receipt of this letter. The 50% balance ($29,088.56) will be due upon cage completion. Please refer to the tariff if you have any questions concerning the costs listed above.

Bell Atlantic no longer provides enclosure for physical collocation. In accordance with the FCC tariff, building a cage is optional and you are not required to have a cage enclosure. Should you choose to build a collocation cage, the space will be available to your pre-approved vendor as of the "CLEC Cage Build Date", noted above.

Please contact Cheryl Mann 617-743-3183, the Local Collocation Coordinator for this site or your Project Manager, James Hunter, at 301-982-6555 if you have any questions regarding this site.

Sincerely,

Richard Sweeney/tml
Collocation Manager – North

cc: C. Mann
J. Hunter